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raphy makes it far easier to present the whole interrelationship of earth and life both from the standpoint of being able to include all important life controls in their proper places, and also from the standpoint of giving a definite correlated idea of the whole. This latter very desirable object is impossible where the classic treatment is adhered to; that is, where the grouping of land forms is made simply on the basis of geological characteristics, and the atmosphere with its results is treated separately. The effect of climatic conditions on the life in plains is different from the effect of climatic conditions in mountains, but in each case it is a very essential part of the environment, and a logical geographical treatment should make the types of earth environment into complete entities. Not until surface forms and climatic conditions are regarded as making single definite units and are studied as such, can geography attain its highest development and become, in fact as well as in definition, the study of the earth in its relations to life.

UNIVERSITY OF PENNSYLVANIA.

STATE GEOLOGICAL SURVEYS AND PRACTICAL GEOGRAPHY.*

BY

FRANK CARNEY.

The expression "practical geography," as used in this paper, implies, not essentially the utilitarian or economic phase of the subject, but the rational as opposed to the idealistic, the possible as opposed to the highly improbable or impossible. What we could accomplish in the way of right geography, and what, as a matter of fact, we are able to accomplish in the near future, are disproportionate quantities. But we do not desire the idealist to become less active; he is the standard-bearer, and when at some future time this country shall have attained the position in geography even now reached in England, we may grant that the man who always advocated the very best did more than half the work. In the meantime, it may not be futile to point out some lines of activity possible for Geological Surveys, organizations already well established and sustained in many of the States. Not only these organizations, but many others, both State and national, are constantly producing much matter that is

* Written for the Chicago Meeting of the Association of American Geographers.

strictly geographic, but which for purposes of geography is unused and will continue useless till properly correlated. The correlation of this material, and the accomplishment of a few other suggestions, appear to the writer practicable at the present time.

No one would underestimate the progress being made in this country in geography. The encouraging conditions furnish an incentive to hasten much better conditions. In our colleges and universities are a number of men employed solely for giving instruction in geography, and other institutions are considering the establishment of chairs. Even in secondary schools the physiographic side of geography, at least, is receiving more attention. The organization of local geographic societies is another evidence of progress.

Of the various agencies through which further and more prompt progress may be effected, the Geological Surveys seem the most worth while considering. If by some necromancy we might at once bestow upon all individuals who are now giving instruction in geography a good training, making them reasonably well-equipped geographers, even such proficiency as domestic institutions can give, we would look no further. For the trained progressive teacher the innovations outlined in this paper have no personal application. In the following paragraphs I briefly consider six ways in which the Surveys might further the interests of geography:

Publications for Teachers.—The publications of our State Surveys contain much that is useful to the secondary school teacher; this is especially true of the economic reports, though there is an objection common to nearly all these publications; they are prepared for the class of critical and informed readers represented by the authors of the reports. No one would suggest that in this respect Surveys should deviate from the present method; such reports must not only be abreast of their phase of the science, but should also make contribution to it.

Nevertheless, it is evident to all that reports of this type can not be of greatest benefit to the average teacher of geography, and it is this teacher with whom we would labour in advancing scientific geography. To this end might not our Surveys prepare special and supplementary reports specifically for teachers? If these teachers as a class were readers of the geographical journals, the desired object might be partially accomplished; but we know they are not; furthermore, publications prepared by their own State for them in particular would make a more certain appeal. The publications I have in mind should be of two types:

- (a) As illustrating the class of special reports, one of these should

aim at instilling a better concept of geography as a science. There is no lack of general books of method in geography, but we need terse treatments of the basal principles that should govern instruction in regional and systematic geography, emphasizing the interrelation between the organic and inorganic parts of the subject, and impressing the necessity of a strict terminology. While in a few text-books some or all of these ideas may be exemplified, they are not given the prominence that insures an appreciation of their importance.

(b) Supplementary reports summarizing for teaching purposes the more extended publications would be of great aid to the schools. For example: In recent years several States have issued extensive studies on their clays and clay industries. In nearly every case these were prepared by specialists; they contain much that is purely technical, besides facts that contribute to human relations; the facts bearing on geography admit of correlation, affording in particular an opportunity to emphasize the organic.

Some States have issued reports on one or another phase of physiography; others are engaged on more extensive physiographic studies. These contemplated publications may be strictly physiographic, embodying only the inorganic, in which case they will disregard half their scope for usefulness in the schools.

Type Sets of Topographic Sheets.—The laboratory manuals in physiography leave no occasion for reference to this topic, so far as classes in that subject are concerned. It is seldom, however, that we find topographic sheets used with classes in elementary geography. These younger pupils, consequently, do not get any conception of the map representation of relief. For their teachers, for the classes, and for older students as well, it would be a great service if Surveys were to provide at a minimum cost mounted sheets illustrating types of topography; so far as is possible, the sheets should be selected from the State concerned. Concise, lucid explanations should accompany the maps.

I am aware that teachers and school boards may secure these maps directly from Washington. But the sheets are not extensively used even in high schools. Their use would become more general if some organization of the State were to take an active interest in seeing that the proper sheets are selected, that these are made more durable by mounting, that their import is to some extent particularized upon, and that the subject of using such maps is brought directly to the attention of the parties who should use them.

The need of good maps in the schools was cogently amplified be-

fore this Association one year ago.* The best maps of home areas available are those issued by the U. S. Geological Survey; the more extensively they are used, the less will be the demand for mediocre maps.

Industrial Activities.—The State supplements of many school geographies usually give special attention to industrial activities; often maps are used in showing the distribution of areas of certain natural products, of the several lines of manufacturing, of particular phases of agriculture, etc. Some of this information is rendered obsolete or incomplete in a very few years; other data, usually illustrating the organic part of geography, appear, so that no matter how satisfactorily these phases of geography were treated in the original edition of the supplement, they are shortly out of date. Two or three years often witness marked changes in the activities of many localities. The fact that there has been a change is not so important in geography as the reason for the change. It is mainly in the industrial lines that innovations arise. The publishers of State supplements can not be expected to investigate and announce these activities with the promptness and thoroughness desired. State Geological Surveys can do this; furthermore, their efforts are not constrained by mercenary interests as with competing publishers.

Field Work.—Some years ago the New York Survey published a "Guide to Excursions in the Fossiliferous Rocks of New York State." This little bulletin is a type of publication that other Surveys might adopt, greatly to the advantage of geography. While the schools of each region must depend largely on the immediate locality for illustrative field work, at the same time each State possesses some features, valuable for study but localized, which should be generally known.

A thickly populated part of a State suggests several lines of investigation which a Survey can treat without in the least discouraging the initiative of local teachers. It is seldom that a city is so completely self-developed that a study of its factories, etc., does not at once lead into relationships of environment, active and passive. The tracing of these relationships may be a matter of considerable study, but of sufficient importance to deserve the attention; the explanatory treatment thus given a particular phase of a city's activity visited by a class is good geography.

The School Museum.—The school museum as an auxiliary in teaching geography is of recognized value. The large permanent museums of certain cities and of some institutions may be of in-

* Cyrus C. Adams, Bull. Am. Geog. Soc., vol. XXXIX, p. 6, 1907.

estimable aid locally, but it is a fact that such collections seldom make an appeal commensurate with their intrinsic worth, save to a few investigators or advanced students. The completeness of such museums is both an advantage and a disadvantage. It is a question whether the circulating school museum as managed in the city of Chicago is not of greater advantage for the purpose designed. The plan brings the material right into the classroom where there are no distractions arising from strangeness and from the multiplicity of objects, as is the case when the class is taken to a museum.

The assembling and management of circulating museums might be undertaken by State Surveys. Additional appropriation should be procured to start the work; if not, increased appropriations will surely come after an exemplification of its value to the schools of the State. Exchange of material between State Surveys would be the normal method of augmenting collections, particularly of natural resources. Thus rocks, ores, minerals, fossils, and illustrations of particular phenomena, as glacial scouring, and marine grinding of given areas, would be added to the collections of other States. The museums of State colleges and universities should be the clearing-houses for this material.

A participatory method might be instituted by which school boards would pay transportation charges on the collections needed. Furthermore, the schools themselves, in localities where desirable material is to be had, might be utilized in collecting for the State, at the same time encouraging the schools to arrange permanent collections.

Manufactured products, so far as is practicable, should have a large place in these collections. Every such product is either a response to a particular environment, or a less immediate and direct but no less important fact of organic geography.

Bibliographies and Digests.—The quantity of matter, primarily or incidentally of geographic value, issued by both government and private presses is so great that even the teacher who is giving his entire time to this study depends to some extent on the reviews and digests appearing in journals, and in bulletins of geographical societies. That the instructor who is dividing his time with other subjects can not keep abreast in geography is apparent; furthermore, it is the exception if this instructor, when he enters upon his work, is broadly acquainted with the literature. For this reason it seems advisable to place in his way the means of strengthening his preparation, and of keeping up to date. Periodical bibliographies and reviews of the recent books and articles would stimulate this activity and insure progressiveness. Surveys could exercise a selective treat-

ment in the preparation of such bibliographies and subjects for digesting, thus eliminating the features less pertinent to the teachers and schools of their States.

CONCLUSION.

To accomplish much of this means that Surveys should employ geographers, or the best trained men that may be secured. Where this is not feasible, the coöperation and part-time assistance of men in teaching positions would be of advantage.

The outlook is encouraging, particularly where Surveys are broadening their scope by giving attention to industrial and economic activities, and by directing investigation in phases of natural history. Regional geography is thus intensified, a work which should precede a well-founded systematic geography, because a satisfactory system presupposes a consideration of a high percentage of the facts which the system would compass.

Even the little that is being done by the least affluent of our Surveys furnishes data and opportunity for advancing better methods in geography. All that is needed is an amplification of work in few lines; an emphasis wherever the schools may be reached, both in instructing and inspiring the teachers and by supplementing the outfit of the class-room; and a correlation of data produced by the Survey, and, to as great an extent as is practicable, by other similar organizations.

THE DEMARCATION OF THE ALASKA BOUNDARY.

A paper on the progress of the Alaska Boundary Survey, read by Mr. O. H. Tittmann on April 24, before the American Philosophical Society, has been reprinted from its *Proceedings* (Vol. xlvii, 1908). The total length of the boundary between Canada and Alaska is 1,200 miles, naturally divided into two sections of about 600 miles each. One is the section bounded by the 141st meridian, concerning which there has been no dispute; and the other is the part of the boundary that delimits the stretch of coast extending from the neighbourhood of Mount St. Elias southeasterly to and through the Portland Canal. This was happily settled by the Tribunal of London in 1904.

Mr. Tittmann, representing the United States, and Mr. W. F. King, on behalf of the British Government, were appointed commis-